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EXAMINER	
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1793	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/654,203	RAKOWSKI, JAMES A.	
	Examiner	Art Unit	
	Jessee Roe	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2007 and 23 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 16-28* is/are pending in the application.

4a) Of the above claim(s) *6,8,14,23,24,27 and 28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7,9-13,16-22,25 and 26* is/are rejected.

7)☒ Claim(s) *1 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 23 August 2007 has been entered.

Status of the Claims

Claims 1-14 and 16-28 are pending wherein claims 6, 8, 14, 23-24 and 27-28 are withdrawn from consideration and claims 15 and 29-98 are canceled.

Claim Objections

Claim 1 is objected to because of the following informalities: the “a” before “having” in the recitation “…a having a hematite structure…” should be omitted. Appropriate correction is required.

Claim 18 is objected to because of the following informalities: Claim 18 recites hafnium as a rare earth metal. However, hafnium is a transition metal. Appropriate correction is required.\

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 7, 9-13, 16-22 and 26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 10 and 11 recite the limitations of "comprising at least 0.2 weight percent aluminum" and "greater than 0.02 weight percent rare earth metals". However, the instant specification does not support the implied upper limits of these ranges.

Claims 2-5, 7, 9, 12-13, 16-22 and 28 are rejected because they depend from a rejected base claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grubb (US 6,641,780).

In regards to claim 1-5 and 9-10, Grubb ('780) discloses a method of making an uncoated ferritic stainless steel article that would have an oxidation resistant surface. The method of Grubb ('780) comprises providing a ferritic stainless steel that would have less than about 0.25 weight percent aluminum (col. 8, lines 44-50) (which overlaps the at least 0.2 weight percent aluminum of the instant invention); up to 0.1 weight percent cerium (col. 7, lines 45-64) (which overlaps the greater than 0.02 weight percent rare earth metal of the instant invention); and greater than 25 weight percent chromium (col. 5, lines 16-30) (which overlaps 16 to less than 30 weight percent chromium of the instant invention). The Examiner notes that the composition disclosed by Grubb ('780) overlaps the composition of the instant invention, thereby establishing a prima facie case of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed compositions from the compositions of Grubb ('780) because Grubb ('780) discloses the same utility (SOFC interconnects) throughout the disclosed ranges.

Still regarding claims 1, 5, 6 and 9, Grubb ('780) also discloses polishing (surface modification) strips of the ferritic stainless steel article for metallographic examination (col. 10, lines 43-57) and high temperature oxidation testing for 500 hours at 800°C (col. 18, line 55 - col. 20, line 9). Grubb ('780) does not specify the hematite structure that would be formed. However, it would be expected that with the same composition and a substantially similar process, the hematite structure and the hematite lattice parameters formed by Grubb ('780) would be the same as that of the instant invention. MPEP 2112.01 I.

Still regarding claim 3, the Examiner notes that the recitation "when heated in an oxidizing atmosphere at a temperature in the range of 750-850°C." would not be an active step in the process as claimed and is therefore considered merely an intended use of the method. MPEP 2111.02 II.

Still regarding claims 4 and 9, the Examiner notes that the recitation "when heated in an oxidizing atmosphere for at least 100 hours at a temperature in the range of 750-850°C." would not be an active step in the process as claimed and is therefore considered merely an intended use of the method. MPEP 2111.02 II.

Claims 7, 11-13, 16-19, 21 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grubb (US 6,641,780) in view of Gamble (US 2,692,853) and/or Faust (US 2,338,321).

In regards to claims 7 and 11-12, Grubb ('780) discloses polishing strips of ferritic stainless steel as shown above, but Grubb ('780) does not specify wherein the strips would be electrochemically polished.

Gamble ('853) discloses a method of electrochemically polishing ferritic stainless steel in an electrolyte to achieve a bright mirror-like polished surface (Examples 1-3). Faust ('321) discloses polishing ferritic steel to achieve a high luster or mirror-like finish unmarred and having improved corrosion resistance (pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify the method of making a ferritic stainless steel article, as disclosed by Grubb ('780), by electropolishing a ferritic steel article, as disclosed by Gamble ('853) or Faust ('321), in order to obtain a bright mirror-like polished surface, as disclosed by Gamble ('853) (Examples 1-3) and/or to obtain improved corrosion resistance, as disclosed by Faust ('321) (pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24).

In regards to claims 13, 16-19 and 25, Grubb ('780) discloses a method of making a ferritic stainless steel article that would have an oxidation resistant surface. The method of Grubb ('780) comprises providing a ferritic stainless steel that would have less than about 0.25 weight percent aluminum (col. 8, lines 44-50) (which overlaps the at least 0.2 weight percent aluminum of the instant invention) ; up to 0.1 weight percent cerium (col. 7, lines 45-64) (which overlaps the greater than 0.02 weight percent rare earth metal of the instant invention); and greater than 25 weight percent chromium (col. 5, lines 16-30) (which overlaps 16 to less than 30 weight percent chromium of the instant invention). The Examiner notes that the composition disclosed by Grubb ('780) overlaps the composition of the instant invention, thereby establishing a prima facie case of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed compositions from the compositions of Grubb ('780) because Grubb ('780) discloses the same utility (solid oxide fuel cell interconnects) throughout the disclosed ranges.

Still regarding claim 13, Grubb ('780) also discloses polishing (surface modification) strips of the ferritic stainless steel article for metallographic examination

(col. 10, lines 43-57) and high temperature oxidation testing for 500 hours at 800°C (col. 18, line 55 - col. 20, line 9). Grubb ('780) does not specify the hematite structure that would be formed. However, it would be expected that with the same composition and a process substantially the same as the instant invention, the hematite structure and the hematite lattice parameters formed by Grubb ('780) would be the same as that of the instant invention. See MPEP 2112.01 I.

Still regarding claim 13, Grubb ('780) discloses polishing strips of ferritic stainless steel as shown above, but Grubb ('780) does not specify wherein the strips would be electrochemically polished.

Gamble ('853) discloses a method of electrochemically polishing ferritic stainless steel in an electrolyte to achieve a bright mirror-like polished surface (Examples 1-3). Faust ('321) discloses polishing ferritic steel to achieve a high luster or mirror-like finish unmarred and having improved corrosion resistance (pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of making a ferritic stainless steel article, as disclosed by Grubb ('780), by electropolishing a ferritic stainless steel article, as disclosed by Gamble ('853) and/or Faust ('321), in order to obtain a bright mirror-like polished surface, as disclosed by Gamble ('853) (Examples 1-3) and/or to obtain improved corrosion resistance, as disclosed by Faust ('321) (pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24).

Still regarding claim 25, the electropolishing of Gamble ('853) and/or Faust ('321)

would require a bath containing a solution and passing a current between the ferritic stainless steel article and the cathode would remove material from the surface, thereby reducing the surface roughness of the surface.

In regards to claim 21, Grubb ('780) discloses that silicon would preferably be less than about 0.5 weight percent (col. 8, lines 33-43).

In regards to claim 26, the electropolishing of Gamble ('853) and/or Faust ('321) would improve the resistance of the surface to oxidation when subjected to a temperature and an atmosphere characteristic of operating conditions with a solid oxide fuel cell because Grubb ('780) in view of Gamble ('853) and/or Faust ('321) discloses substantially the same composition and same processing as that of the instant invention.

Still regarding claim 26, the Examiner notes that the recitation "when subjected to a temperature and an atmosphere characteristic of operating conditions within a solid oxide fuel cell." would not be an active step in the process as claimed and is therefore considered merely an intended use of the method. MPEP 2111.02 II.

Claims 1-5 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takehiro (JP 10-280103).

In regards to claim 1, Takehiro (JP '103) discloses a method of making an uncoated ferritic stainless steel article that would have an oxidation resistant surface. The method of Takehiro (JP '103) comprises providing a ferritic stainless steel that would have less than or equal to 1 weight percent aluminum (which overlaps the at least

0.2 weight percent aluminum of the instant invention), 15 to 30 weight percent chromium (which overlaps 16 to less than 30 weight percent chromium of the instant invention), and less than or equal to 0.5 weight percent yttrium (which overlaps the greater than 0.02 weight percent rare earth metal of the instant invention) (abstract) (claim 4). The Examiner notes that the composition disclosed by Takehiro (JP '103) overlaps the composition of the instant invention, thereby establishing a prima facie case of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed compositions from the compositions of Takehiro (JP '103) because Takehiro (JP '103) discloses the same utility (fuel cell components) throughout the disclosed ranges.

Still regarding claim 1 and in regards to claim 2, Takehiro (JP '103) does not specify the hematite structure that would be formed. However, Takehiro (JP '103) does disclose peeling off the surface of oxide scale (surface modification) [0020]. Therefore, it would be expected that with the same composition and a process substantially the same as claimed in the instant invention, the hematite structure and the hematite lattice parameters formed by Takehiro (JP '103) would be the same as that of the instant invention. MPEP 2112.01 I.

In regards to claims 3-5 and 9, Takehiro (JP '103) discloses a substantially similar composition and a surface modification (peeling off a surface) as claimed in the instant invention. Therefore, it would be expected that the composition disclosed by Takehiro (JP '103) would be capable of developing an oxide scale when heated in an oxidizing atmosphere in the range of 750-850°C and that an oxide scale characterized

by lattice parameters a_0 in the range of 4.95 to 5.04 A and c_0 in the range of 13.57 to 13.75 A would be formed. MPEP 2112.01 I.

Still regarding claims 3, the Examiner notes that the recitation "when heated in an oxidizing atmosphere at a temperature in the range of 750-850°C." would not be an active step in the process as claimed and is therefore considered an intended use of the method. MPEP 2111.02 II.

Still regarding claims 4 and 9, the Examiner notes that the recitation "when heated in an oxidizing atmosphere for at least 100 hours at a temperature in the range of 750-850°C." would not be an active step in the process as claimed and is therefore considered merely an intended use of the method. MPEP 2111.02 II.

Claims 7, 11-13, 16-22 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takehiro (JP 10-280103) in view of Gamble (US 2,692,853) and/or Faust (US 2,338,321).

In regards to claims 7, 11-13, 16 and 25, Takehiro (JP '103) discloses a method of making an uncoated ferritic stainless steel article that would have an oxidation resistant surface. The method of Takehiro (JP '103) comprises providing a ferritic stainless steel that would have less than or equal to 1 weight percent aluminum (which overlaps the at least 0.2 weight percent aluminum of the instant invention), 15 to 30 weight percent chromium (which overlaps 16 to less than 30 weight percent chromium of the instant invention), and less than or equal to 0.5 weight percent yttrium (which overlaps the greater than 0.02 weight percent rare earth metal of the instant invention) (abstract) [0009-0010]. The Examiner notes that the composition disclosed by

Takehiro (JP '103) overlaps the composition of the instant invention, thereby establishing a prima facie case of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed compositions from the compositions of Takehiro (JP '103) because Takehiro (JP '103) discloses the same utility (fuel cell components) throughout the disclosed ranges.

Still regarding claims 11-12, Takehiro (JP '103) further discloses generating an oxide layer by heat-treating for 100 hours at 1000°C and forming exfoliations of the oxidation scale [0024]. However, Takehiro (JP '103) do not specify electrochemically modifying the surface to remove the scale.

Gamble ('853) discloses a method of electrochemically polishing ferritic stainless steel in an electrolyte to achieve a bright mirror-like polished surface (Examples 1-3). Faust ('321) discloses polishing ferritic steel to achieve a high luster or mirror-like finish unmarred and having improved corrosion resistance (pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of making a ferritic stainless steel article, as disclosed by Takehiro (JP '103), by electropolishing a ferritic stainless steel article, as disclosed by Gamble ('853) and/or Faust ('321), in order to obtain a bright mirror-like polished surface, as disclosed by Gamble ('853) (Examples 1-3) and/or to obtain improved corrosion resistance, as disclosed by Faust ('321) (pg. 2, col. 2, lines 1-

7 and pg. 3, col. 1, lines 16-24).

Still regarding claim 13, Takehiro (JP '103) in view of Gamble ('853) and/or Faust ('321) discloses a substantially similar composition processed in a manner substanitally similar to that of the instant invention. Therefore, it would be expected that the composition disclosed by Takehiro (JP '103) in view of Gamble ('853) and/or Faust ('321) would be capable of developing an oxide scale when heated in an oxidizing atmosphere in the range of 750-850°C and that an oxide scale characterized by lattice parameters a_0 in the range of 4.95 to 5.04 A and c_0 in the range of 13.57 to 13.75 A would be formed. MPEP 2112.01 I.

Still regarding claim 25, the Examiner asserts that the electropolishing of Gamble ('853) and/or Faust ('321) would require a cathode and passing a current between the ferritic stainless steel article and the cathode would remove material from the surface, thereby reducing the surface roughness of the surface.

In regards to claims 17-19, Takehiro (JP '103) discloses that the ferritic stainless would have less than or equal to 0.5 weight percent yttrium (which overlaps the greater than 0.02 up to 1.0 weight percent rare earth metal limitation) (abstract).

In regards to claim 20-21, Takehiro (JP '103) discloses that the ferritic stainless would have 15 to 30 weight percent chromium (which overlaps the 18 up to 22 weight percent chromium of the instant invention), less than or equal to 1 weight percent aluminum (which overlaps 0.4 to 0.8 weight percent aluminum of the instant invention), less than or equal to 0.5 weight percent yttrium (which overlaps the 0.02 to 0.2 weight

percent rare earth metal of the instant invention), and less than or equal to 1 weight percent titanium (which overlaps the up to 0.5 weight percent titanium) (abstract).

In regards to claim 22, Takehiro (JP '103) discloses that the ferritic stainless would have 15 to 30 weight percent chromium (which overlaps the about 22 weight percent chromium of the instant invention), less than or equal to 1 weight percent aluminum (which overlaps the about 0.6 weight percent aluminum of the instant invention), less than or equal to 0.2 weight percent rare earth elements, which includes cerium and lanthanum (which overlaps the up to 0.10 weight percent cerium and lanthanum composition of the instant invention), and less than or equal to 1 weight percent titanium (which overlaps the up to 0.5 weight percent titanium) (abstract).

In regards to claim 26, the electropolishing of Gamble ('853) and/or Faust ('321) would improve the resistance of the surface to oxidation when subjected to a temperature and an atmosphere characteristic of operating conditions with a solid oxide fuel cell because Grubb ('780) in view of Gamble ('853) and/or Faust ('321) discloses substantially the same composition and same processing as that of the instant invention.

Still regarding claim 26, the Examiner notes that the recitation "when subjected to a temperature and an atmosphere characteristic of operating conditions within a solid oxide fuel cell." would not be an active step in the process as claimed and is therefore considered merely an intended use of the method. MPEP 2111.02 II.

Claims 1-5 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (US 5,228,932).

In regards to claim 1, Shimizu et al. (‘932) disclose a method for making a ferritic stainless steel alloy having an oxidation resistant surface (abstract, col. 8, lines 64-66, and col. 9, lines 9-15). Shimizu et al. (‘932) further disclose that the steel alloy would comprise 10 to 28 weight percent chromium, 1 to 10 weight percent aluminum, and 0.01 to 0.20 weight percent lanthanum (rare earth metal). Shimizu et al. ('932) further disclose hot rolling the steel at a temperature in the range of 500-1300°C with a reduction of 50% or more (modifying to remove material) (col. 5, lines 26-35) and cold rolling the steel at a temperature in the range of 800-1200°C (col. 5, line 66 - col. 6, line 3).

Still regarding claim 1, the Examiner notes that the composition disclosed by Shimizu et al. ('932) overlaps the composition of the instant invention, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed amounts of chromium, aluminum, and rare earth metal for a ferritic stainless steel alloy from the amounts of chromium, aluminum, and rare earth metal (lanthanum) disclosed by Shimizu et al. (‘932) because Shimizu et al. (‘932) disclose the same utility throughout the disclosed ranges.

With respect to the limitation “so that, when subjected to an oxidizing atmosphere at high temperature, the modified surface develops an electrically conductive, aluminum-rich oxidation resistant oxide scale comprising chromium and iron and a having a hematite structure differing from Fe_2O_3, alpha Cr_2O_3, and alpha Al_2O_3.” of claim 1, because Shimizu et al. ('932) disclose modifying the surface of an overlapping

composition, this occurrence would be expected. MPEP 2112.01 I. Furthermore, this recitation does not positively recite the step of forming the oxide scale on the surface.

In regards to claims 2 and 5, Shimizu et al. ('932) disclose modifying the surface of an overlapping composition, therefore lattice parameters a_o and c_o of the oxide scale different from a_o and c_o of Fe_2O_3, alpha Cr_2O_3, and alpha Al_2O_3 and lattice parameters a_o in the range of 4.95 to 5.04 A and c_o in the range of 13.58 to 13.75 A would be expected. MPEP 2112.01.

Still regarding claims 3, the Examiner notes that the recitation "when heated in an oxidizing atmosphere at a temperature in the range of 750-850°C." would not be an active step in the process as claimed and is therefore considered an intended use of the method. MPEP 2111.02 II.

Still regarding claims 4 and 9, the Examiner notes that the recitation "when heated in an oxidizing atmosphere for at least 100 hours at a temperature in the range of 750-850°C." would not be an active step in the process as claimed and is therefore considered merely an intended use of the method. MPEP 2111.02 II.

Claims 7, 11-13, 16-19 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (US 5,228,932) in view of Gamble (US 2,692,853) and/or Faust (US 2,338,321).

In regards to claims 7, 11-13, 16-19 and 25, Shimizu et al. ('932) disclose a method for making a ferritic stainless steel alloy having an oxidation resistant surface (abstract, col. 8, lines 64-66, and col. 9, lines 9-15). Shimizu et al. ('932) further disclose

that the steel alloy would comprise 10 to 28 weight percent chromium, 1 to 10 weight percent aluminum, and 0.01 to 0.20 weight percent lanthanum (rare earth metal). Shimizu et al. ('932) further disclose hot rolling the steel at a temperature in the range of 500-1300°C with a reduction of 50% or more (modifying to remove material) (col. 5, lines 26-35) and cold rolling the steel at a temperature in the range of 800-1200°C (col. 5, line 66 - col. 6, line 3).

Gamble (‘853) discloses a method of electrochemically polishing ferritic stainless steel in an electrolyte to achieve a bright mirror-like polished surface (Examples 1-3). Faust (‘321) discloses polishing ferritic steel to achieve a high luster or mirror-like finish unmarred and having improved corrosion resistance (pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of making a ferritic stainless steel article, as disclosed by Shimizu et al. (‘932), by electropolishing a ferritic stainless steel article, as disclosed by Gamble (‘853) and/or Faust (‘321), in order to obtain a bright mirror-like polished surface, as disclosed by Gamble (‘853) (Examples 1-3) and/or to obtain improved corrosion resistance, as disclosed by Faust (‘321) (pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24).

Still regarding claim 11, the Examiner notes that the composition disclosed by Shimizu et al. ('932) overlaps the composition of the instant invention, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed amounts

of chromium, aluminum, and rare earth metal for a ferritic stainless steel alloy from the amounts of chromium, aluminum, and rare earth metal (lanthanum) disclosed by Shimizu et al. ('932) because Shimizu et al. ('932) disclose the same utility throughout the disclosed ranges.

Still regarding claim 13, Shimizu et al. ('932) discloses a substantially similar composition as that of the instant invention. Therefore, it would be expected that the composition disclosed by Shimizu et al. ('932) would be capable of developing an oxide scale when heated in an oxidizing atmosphere in the range of 750-850°C and that an oxide scale characterized by lattice parameters a_0 in the range of 4.95 to 5.04 A and c_0 in the range of 13.57 to 13.75 A would be formed. MPEP 2112.01 I.

Still regarding claim 25, the Examiner asserts that the electropolishing of Gamble ('853) and/or Faust ('321) would require a cathode and passing a current between the ferritic stainless steel article and the cathode would remove material from the surface, thereby reducing the surface roughness of the surface.

In regards to claim 21, Shimizu et al. ('932) disclose 1 weight percent or less manganese, 0.5 weight percent or less silicon, 0.02 weight percent or less nitrogen0.05 weight percent or less carbon, 0.05 weight percent or less titanium, which overlap the ranges of the instant invention. With respect to the phrase "up to", the Examiner asserts that these elements would not be required because "up to" would include 0 weight percent. Shimizu et al. ('932) do not necessitate the addition of nickel, therefore Shimizu et al. ('932) meet the claim limitation of "up to 3 nickel".

In regards to claim 26, the electropolishing of Gamble ('853) and/or Faust ('321)

would improve the resistance of the surface to oxidation when subjected to a temperature and an atmosphere characteristic of operating conditions with a solid oxide fuel cell because Grubb ('780) in view of Gamble ('853) and/or Faust ('321) discloses substantially the same composition and same processing as that of the instant invention.

Still regarding claim 26, the Examiner notes that the recitation "when subjected to a temperature and an atmosphere characteristic of operating conditions within a solid oxide fuel cell." would not be an active step in the process as claimed and is therefore considered merely an intended use of the method. MPEP 2111.02 II.

Prior Art

The prior art made of record and not relied upon that is considered pertinent to applicant's disclosure. Ralph et al. "Materials for lower temperature solid oxide fuel cells".

Response to Arguments

Applicant's arguments filed 23 August 2007 have been fully considered but they are not persuasive.

First, the Applicant primarily argues that Grubb ('780) is only available as prior art under 35 U.S.C. 102(e) and is therefore disqualified as prior art under 35 U.S.C. 103(a). In response, the Examiner notes that the Applicant has failed to submit a statement of common ownership showing that the instant invention and the reference to Grubb ('780) were commonly owned at the time the instant invention was filed.

Second, the Applicant primarily argues that the Examiner has not established a prima facie case and that the Examiner has failed to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner as claimed. In response, the Examiner has set forth the reasoning in the rejections listed above.

Third, the Applicant primarily argues that the Examiner does not give a rational basis for why it would have been beneficial to have electropolished steel as it relates to the improved performance of SOFC's. In response, it is known in the art that ferritic stainless steels would be used in the manufacture of SOFC's. It is also known that corrosion would occur on SOFC's (Ralph et al. "Materials for lower temperature solid oxide fuel cells"). Therefore, one skilled in the art would look for a means of improving the corrosion resistance of such steel alloys used for SOFC's. Gamble ('853) discloses a method of electrochemically polishing ferritic stainless steel in an electrolyte to achieve a bright mirror-like polished surface (Examples 1-3). Faust ('321) discloses polishing ferritic steel to achieve a high luster or mirror-like finish unmarred and having improved corrosion resistance (pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24).

Fourth, the Applicant primarily argues that the Examiner's prima facie case is clearly rebutted by secondary considerations because the improvement obtained are wholly unexpected and significant. In response, the prior art reference to Faust ('321) (pg. 1, col. 1, lines 5-25, pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24) teaches improved corrosion (oxidation) resistance can be achieved by electropolishing in comparison with regular mechanical polishing. Therefore, such an improvement would

not have been wholly unexpected as argued by the Applicant.

Response to Declaration

The Declaration under 37 CFR 1.132 filed 23 August 2007 is insufficient to overcome the rejection of claim 7, 11-13, 16-19 and 25-26 because:

First. Gamble ('853) discloses a method of electrochemically polishing ferritic stainless steel in an electrolyte to achieve a bright mirror-like polished surface (Examples 1-3). Faust ('321) discloses polishing ferritic steel to achieve a high luster or mirror-like finish unmarred and having improved corrosion (oxidation) resistance in comparison with regular polishing (pg. 1, col. 1, lines 5-25, pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24).

Second, Mr. Brady declares that he is not aware of any previous findings of electropolishing enhancing high temperature oxidation resistance. In response, the Examiner notes that the recitation "when subjected to a temperature and an atmosphere characteristic of operating conditions within a solid oxide fuel cell." and variations thereof would not be an active step in the process as claimed and is therefore considered merely an intended use of the method. MPEP 2111.02 II.

Third, Mr. Brady declares that prior to September 3, 2003, metallurgists would have predicted that ferritic stainless surfaces that were electropolished would exhibit no beneficial oxidation-related effects and would likely reduce the level of oxidation resistance. In response, Gamble ('853) discloses a method of electrochemically polishing ferritic stainless steel in an electrolyte to achieve a bright mirror-like polished

surface (Examples 1-3). Faust ('321) discloses polishing ferritic steel to achieve a high luster or mirror-like finish unmarred and having improved corrosion (oxidation) resistance in comparison with regular polishing (pg. 1, col. 1, lines 5-25, pg. 2, col. 2, lines 1-7 and pg. 3, col. 1, lines 16-24).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571) 272-5938. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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JR

/Roy King/

Supervisory Patent Examiner, Art Unit 1793